

## **REMARKS**

### **I. Introduction**

In view of the above amendments and the following remarks, reconsideration of the rejections set forth in the Office Action of December 9, 2009 is respectfully requested.

By this amendment, claims 5, 25, 31, and 34-36 have been amended, claims 7, 8, 27-30, and 32 have been cancelled without prejudice or disclaimer to the subject matter contained therein, and claims 37-45 have been added. Claims 5-6, 24-26, 31, and 33-45 are now pending in the application. No new matter has been added by these amendments.

### **II. Requirements on the Examiner**

Applicants note that the Office Action of December 9, 2010 lacks any discussion of the limitations of at least claims 32, 34, and 35. While these claims are indicated as being rejected, Applicants are left to guess as to the Examiner's interpretation of the claims and as to which portions of the references are relied upon.

Most notably, previously included claim 32 recited the limitations: "the polishing rate data on the at least one past substrate includes polishing rate data on at least two past substrates, the at least two past substrates including a more recently polished substrate and a less recently polished substrate; and wherein said weighted average method assigns more weight to the polishing rate data on the more recently polished substrate than the polishing rate data on the less recently polished." It appears that these limitations are clearly not disclosed or rendered obvious by the applied prior art, as discussed in more detail below. While claim 32 has been cancelled, subject matter similar to that of claim 32 has been added to claims 5 and 31.

Moreover, despite the fact that detailed remarks traversing the anticipation rejection over

the Williams reference were included in the Response of September 14, 2009, the Office Action fails to include any answer to these remarks.

Applicants note that “[w]hen a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable” and that “[in] order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application...Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.” See 37 C.F.R. § 1.104(c)(2) and MPEP 707.07(f) (emphasis added).

If any prior art rejection is asserted in any future Office Action, Applicants respectfully request that the limitations of each rejected claim be addressed and that the particular part of the prior art reference which is relied on be designated as nearly as practicable. Moreover, if any prior art rejection over the Prahbu et al. or Williams references is asserted, Applicants respectfully request each grounds of traversal be answered by the Examiner.

### III. Prior Art Rejections

Currently, claims 5-8, 24, 26, 27, and 31 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over Prahbu et al. (US 6,439,964), a duplicate rejection of claims 7 and 8 is made under 35 U.S.C. § 102(e) over Kakita (US 2003/0077904), and claims 5-8 and 24-35 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over Williams (US 6,594,542).

The rejections of claim 7, 8, and 27-30 are moot in view of the cancellation of those claims. Moreover, claim 5 is patentable over Prahbu et al. and Williams for the following

reasons. Claim 5 requires a polishing method comprising: measuring a thickness of a film formed on a substrate; inputting a desired thickness of a film formed on a substrate to be polished; storing polishing rate data on at least two lately polished substrates in a storage device; calculating a polishing rate and an optimal polishing time based on the polishing rate data and the desired thickness by using a weighted average method which weights the polishing rate data on the at least two lately polished substrates; and polishing a subsequent substrate for the optimal polishing time, wherein the weighted average method includes setting a weight coefficient for each lately polished substrate, and wherein the weight coefficient for a most recently polished substrate of the at least two lately polished substrates is larger than the weight coefficient for a less recently polished substrate of the at least two lately polished substrates.

As discussed in detail in the response of September 14, 2009, Prahbu et al. discloses a summation equation using empirical data on a set of test substrates. This summation equation is not an average, much less a weighted average. On page 2 of the Office Action, the Examiner asserts that “[the] weighted average [required by claim 5] is interpreted as considering the thickness of the pre-polishing measurement and weighing that with the substrate during and after polishing.” In making this assertion, the Examiner appears to interpret the word “weighing” as being synonymous with “comparing” or “considering.” This interpretation is outside the bounds of the broadest reasonable interpretation (see MPEP 2111) of the phrase “weighted average.”

While Applicants disagree with the Examiner’s rejection, claim 5 has been amended in an effort to advance prosecution so as to recite further limitations which are not disclosed or rendered obvious by Prahbu et al. Specifically, the weighted average method is further defined as including setting of a weight coefficient for each lately polished substrate, the weight coefficient for a most recently polished substrate of the at least two lately polished substrates

being larger than the weight coefficient for a less recently polished substrate of the at least two lately polished substrates. Prahbu et al. does not disclose a weighted average method, does not disclose setting weight coefficients for each lately polished substrate, and does not disclose a weight coefficient being larger for a more recently polished substrate; as such, Prahbu et al. cannot meet the requirements of claim 5.

As discussed in the Response of September 14, 2009, the Williams reference discloses a method for controlling the depth of removal of a material on a semiconductor. On page 3 of the Office Action, the equation shown in lines 48-63 of column 3 of the Williams reference is asserted as corresponding to the weighted average method of claim 5. However, that portion of Williams discloses a well known equation called “Preston’s equation,” which determines the removal rate as a function of applied pressure and relative velocity; this equation is not a weighted average method. Because Williams does not disclose a weighted average method, Williams cannot meet the requirements of claim 5. Moreover, Williams does not disclose setting weight coefficients for each lately polished substrate, and does not disclose a weight coefficient being larger for a more recently polished substrate; as such, Williams cannot meet the requirements of claim 5.

Further, it appears as though there would have been no reason to modify any of the prior art of record to yield a configuration which would meet the requirements of claim 5. It is thus submitted that the invention of the present application, as defined in claim 5, is not anticipated nor rendered obvious by the prior art, and yields significant advantages over the prior art. Allowance is respectfully requested.

Claims 6 and 24-26 depend, directly or indirectly, from claim 5 and are thus allowable for at least the reasons set forth above in support of claim 5. Claims 31 and 38 require

limitations substantially similar to those of claim 5, and Applicants submit that claims 31 and 38 are allowable for at least the reasons set forth above in support of claim 5. Claims 33-37 depend from claim 31 and claims 39-45 depend from claim 38, and are thus allowable by virtue of their dependencies.

In view of the foregoing amendments and remarks, inasmuch as all of the outstanding issues have been addressed, it is respectfully submitted that the present application is now in condition for allowance, and action to such effect is earnestly solicited. Should any issues remain after consideration of the response, however, the Examiner is invited to telephone the undersigned at the Examiner's convenience.

Respectfully submitted,

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